## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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| In re application of: **Anderson** | § | Group Art Unit: **3689** |
| | § | |
| Serial No. **10/743,587** | § | Examiner: **Fisher, Paul R.** |
| | § | |
| Filed: **December 22, 2003** | § | Confirmation No.: **7986** |
| | § | |
| For: **Locating Harvested Material** | § | |
| **Within a Work Area** | § | |

78833

PATENT TRADEMARK OFFICE
CUSTOMER NUMBER

**Commissioner for Patents**
**P.O. Box 1450**
**Alexandria, VA 22313-1450**

## REPLY BRIEF (37 C.F.R. 41.41)

This Reply Brief is submitted in response to the Examiner's Answer mailed on June 24, 2010.

No fees are believed to be required to file a Reply Brief. If any fees are required, I authorize the Commissioner to charge these fees which may be required to Yee & Associates Deposit Account No. 50-3157.
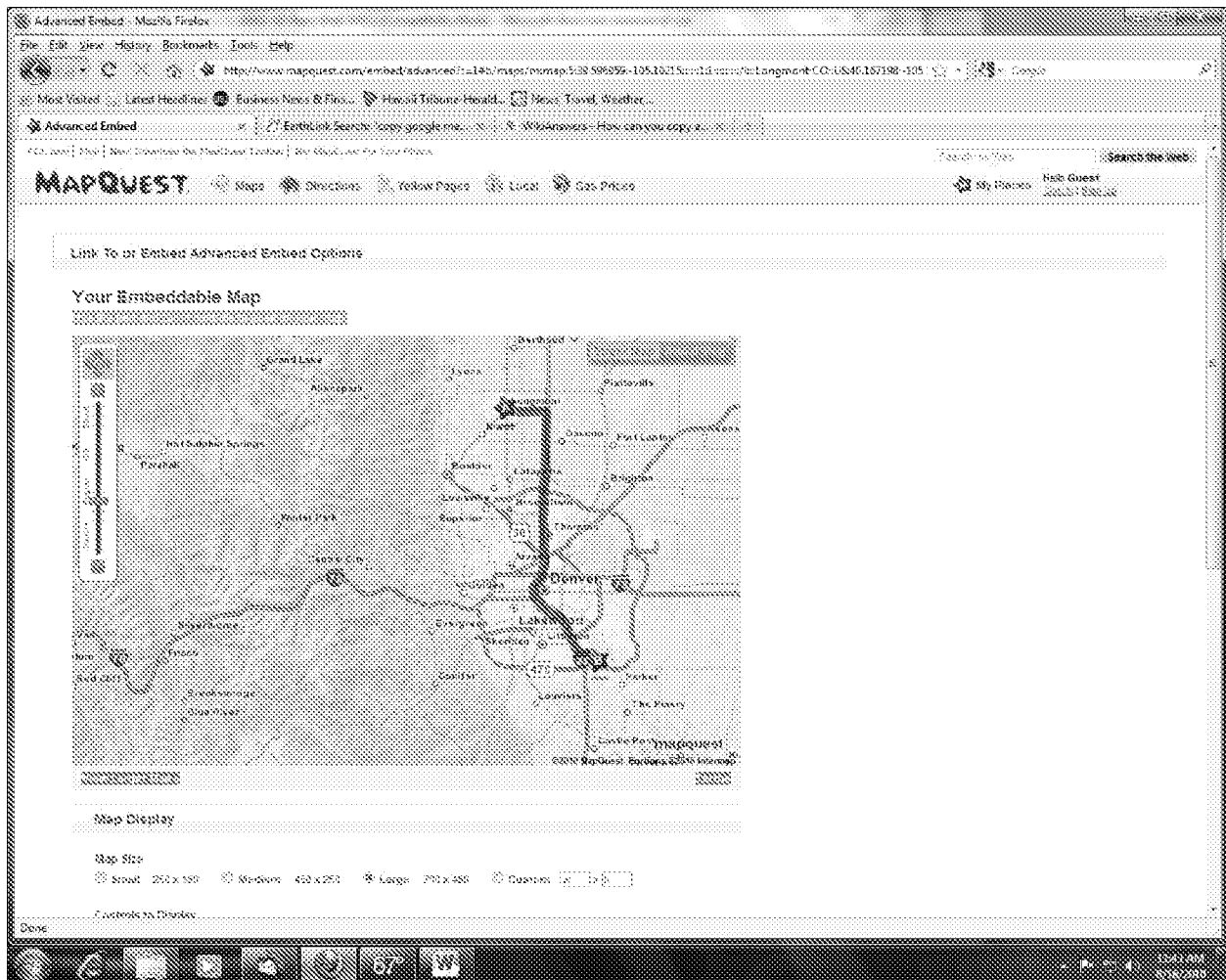
## RESPONSE TO EXAMINER'S ANSWER

**Appellant Rebuttal to the "(10) Response to Argument" section on pages 32-49 of the Examiner's Answer dated June 24, 2010**

Paragraph 6 on Page 32 comments – path selection versus timing selection
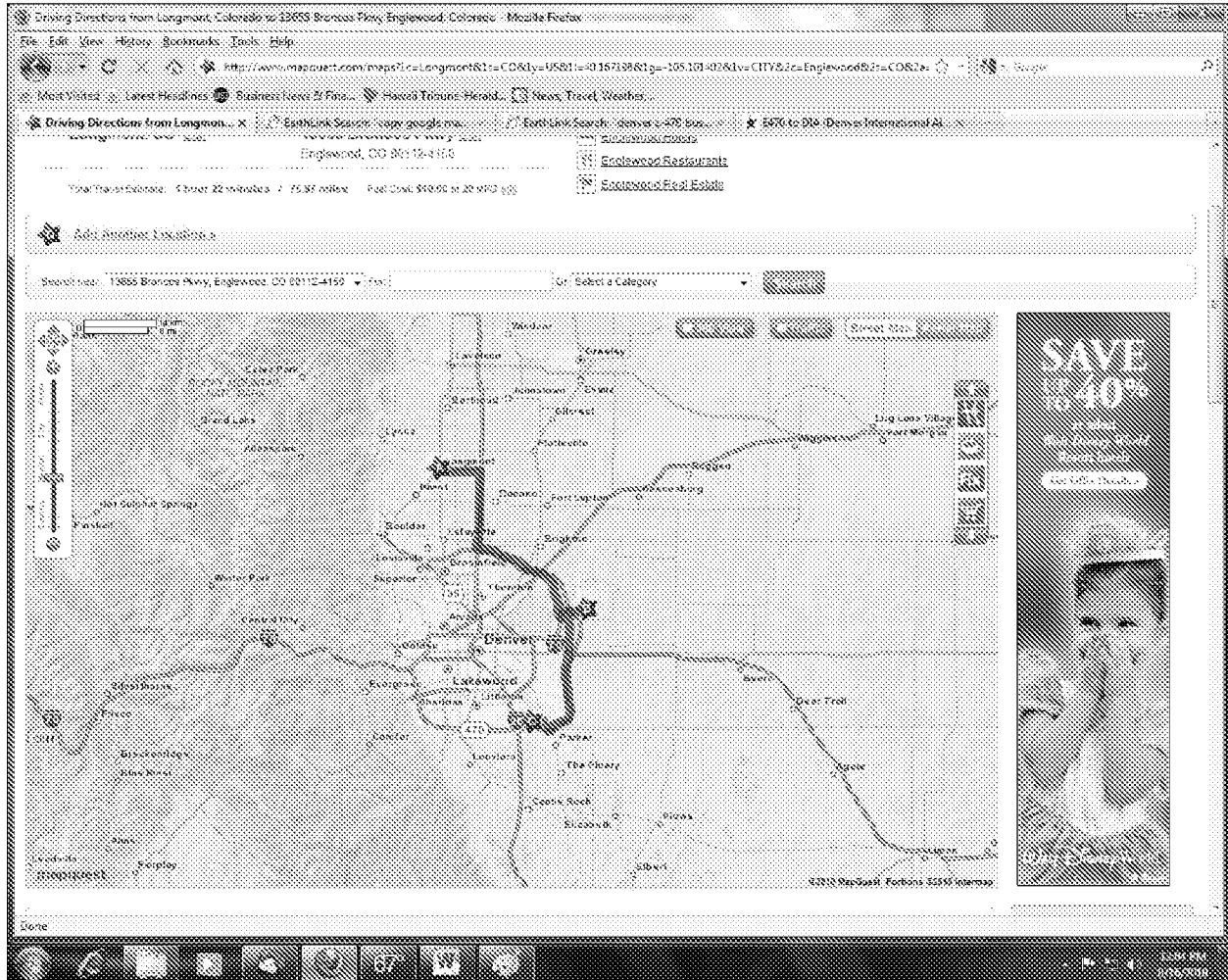
It is initially noted that Appellant is not arguing that a path is not selected, but instead is pointing out that the cited reference does not teach selecting a path from a plurality of paths *to minimize economic cost factors*.

The cited Motz reference describes a timing-based procedure to estimate when a cart will be full in order to provide continuous harvesting (time-based), thus avoiding unproductive time in which the harvester is idle. Motz does not describe selecting a path from amongst a plurality of paths (path-selection-based) to minimize economic cost factors – as described in detail in the Appeal Brief. A simple example will illustrate this distinction.

Assume a person wants to travel from Longmont, CO (north of Denver) to Englewood, CO (south of Denver). Entering the starting and ending destination into MapQuest yields the following route selection – which is the shortest route between the two points and thus is selected to *minimize economic costs* of fuel usage and wear/tear on the vehicle by choosing the shortest path.

However, such path selection fails to account for the fact that this direct route is along I-25, a heavily travelled interstate highway that travels through the heart of Denver and is notorious for its stop and go traffic – particularly during rush hours. The driver desires to select a path that instead *minimizes travel time* (i.e. the path selection is time-based, and is *not* selected in order to minimize economic costs). The driver instead chooses a path that follows an E-470 bypass loop that loops way out east of Denver, and then returns west where it re-intersects with I-25 (as shown below). By selecting this path using a time-based criteria, approximately 30 minutes (or more, depending on I-25 traffic) are saved in travelling from Longmont to Englewood, but at an *increased cost* due to the additional approximately 20 miles that must be travelled and associated fuel expenditure.

Thus, selecting the I-25 route is based on minimizing economic costs, whereas selecting the E-470 route is based on timing. By analogy, Motz is akin to selecting the E-470 route as it time-based – which does not describe path selection being made to minimize economic costs, but instead described procedures to minimize idle time/waiting by providing proper machine timing. Therefore, Motz does not teach/suggest "selecting, by the data processing system, a preferential path plan between the forwarder location and the material location consistent with the background data and *minimization of the economic cost factors*". [1]

This timing/speed versus cost selection distinction is also nicely summarized below

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[1] Minimize/minimization – to reduce or keep to a minimum (Source: http://www.merriam-webster.com/dictionary/minimization)

(SOURCE: http://www.usairportparking.com/e470.asp):

**Circling Denver on 470 to go all the way around Denver and miss Denver traffic???**
It's longer to use E470 - it's about 34 miles on I-25 and it's about 47 miles on E470 (from the north and south intersections of E470 and I-25), and you'll stop to pay tolls five times unless you have the ExpressToll, possibly once at the stoplight at I-70 (Good news: The I-70/E-470 Interchange improvements have begun, and the fly-by is scheduled to open in late 2006, according to the E470 Public Highway Authority. The flyover will allow E-470 drivers to by pass the traffic light if continuing on E-470. Your toll dollars at work!) It's a bunch of toll fees one way on E470 from one end to the other. However, speed limits average about 15-20% higher on E470.

At midnight, E470 is probably not good "shortcut" around Metro Denver - it would generally take longer, with the 38% greater distance outweighing the 20% (approx) higher speed limit, and **costs more**. However, at the start of rush hour, if there are accidents, particularly in bad weather, it will be **considerably faster** is actual E470 speeds could be as much as 100 or 200% higher - If it was 4:30PM on a snowy Friday, I'd do it: It could easily be an hour (or more) faster, and a lot less stress.

There are numerous other examples of path selection that demonstrate this cost/time distinction. For example, an airplane may take a longer route to its destination in order to time its arrival at the airport when a free gate is available, thus avoiding waiting on the tarmac for the gate to become free. Here, the path is selected *based on timing at a higher expense* due to increased fuel costs that result from the longer in-flight route.

Therefore, even to the extent that a path may be selected by Motz, such path is not selected to minimize economic costs since a timing-based criterion for performing work does not implicitly or inherently result in minimized economic cost, as shown hereinabove.

Thus, it has been shown that a timing-based machine processing of when to unload materials, as described by Motz, is not a path being selected from a plurality of paths that is performed to *minimize* economic cost, as claimed. Thus, Claim 1 has been erroneously rejected.

<u>Paragraph 7 on page 33 comments – preferential path plan</u>

The only time Motz has unloaded material is when the first machine with the material has already traveled to its desired location to unload the material in the second machine. In other words, the *material is unloaded <u>after</u> having traversed its travel path*. Therefore, there would have been no need for Motz to account for a position of unloaded material in selecting a path plan. In contrast, Claim 1 recites "selecting, by the data processing system, *a preferential path plan* <u>between</u> the forwarder location and the material location …, wherein the *material location of the <u>unloaded</u> harvested material* is a different location than the forwarder location of the forwarder". Due to Motz keen desire to provide continuous, uninterrupted operation a person of ordinary skill in the art would not have been motivated to modify Motz to provide unloaded material at a material location that is used in selecting a preferential path plan, as claimed.

<u>Paragraph 8 on page 33 comments – path selection</u>

Selecting a path so as to not disturb un-harvested crops does not ensure that the economic cost is *minimized*, for similar reasons to those given above with respect to paragraph 6. Such path selection also does not take into account the location of *unloaded* harvested material.

<u>Paragraph 9 on page 34 comments – ON/OFF detection</u>

The Mueller detected 'location' is the location of the sensor, and not to the location of the material (which has moved passed the sensor to another location). The sensors tell 'when' the material was unloaded, but not where the unloaded materials currently exists.

<u>Paragraph 10 on page 35 comments – unloaded material</u>

Motz performs its path selection (page 10, lines 24-29; Figure 3, element 310) *<u>before</u> the material is unloaded* (determines 'expected location' at 'expected time', determines a desired path), and thus cannot describe any path selection being performed *with respect to unloaded material that has <u>already been unloaded</u>* ('*unloaded* harvested material').

## Paragraph 11 on page 35 comments – unloaded material

Both the Motz sensors and the Mueller sensors tell 'when' an action has occurred (bin full; material unloaded), and neither are used to select a path for pickup – if for no other reason than neither of these sensors provide location information for unloaded material. The Motz sensor detects material in a hopper, and this is not unloaded material. The Mueller sensor provides location information for the actual sensor's own location, as previously described in the Appeal Brief.

## Paragraph 12 on page 35 comments – multiple harvesters

Even if the cited Motz reference describes multiple points of pickup, the path is still described as being selected *prior to* the material being *unloaded* ('expected location, 'expected time' Motz page 10, lines 22-29) – and therefore actual unloaded material that has been unloaded is not used in path selection.

## Paragraph 13 on page 36 comments – hindsight

Motz describes a keen desire to *pick a path prior to material being unloaded* in order to facilitate its continuous operation – and thus a person of ordinary skill in the art would not have been motivated to modify Motz in accordance with the features of Claim 1 pertaining to path selection between a forwarder location and unloaded materials.

## Paragraph 14 on page 37 comments – loaded/unloaded material

Please see the discussion above regarding paragraphs 7 and 10.

## Paragraph 15 on page 36 comments – shortest path

Please see the discussion above regarding paragraph 6.

## Paragraph 16 on page 38 comments – loaded/unloaded material

Please see the discussion above regarding paragraphs 7 and 10. In addition, both the Motz sensors and Mueller sensors provide status information at random times, and therefore do not teach updating of information on a periodic basis.

<u>Paragraph 17 on page 38 comments – updated timing</u>

The machine position data – to the extent such machine contains unloaded material – is not described as being updated after the addition of a new material location, as claimed. The Examiner's rebuttal that the cited reference teaches unloaded material fails to address this previously pointed out prima facie obviousness deficiency.

<u>Paragraph 18 on page 38 comments – user display</u>

The asserted teaching of a user manually operating a display does not establish prima facie obviousness with respect to the claimed feature of "wherein the background data comprises transient data associated with at least one of a time-dependent location of a machine in the work area, a time-dependent location of a person within the work area, and a time-dependent definition of a harvested area associated with the work area, and *wherein <u>both the background data and the material data are specified by a user</u> using a user interface of the data processing system*".

<u>Paragraphs 19-21 on pages 39-40 comments – path selection/unloaded materials</u>

Please see the discussion above regarding paragraphs 6, 7 and 10.

<u>Paragraph 22 page 41 comments – user interface</u>

The claim is specific to 'background data', and not merely 'data'. The background data is specially defined, and the cited reference does not teach a user interface with such 'background data' characteristics – instead the cited passage merely describes that a user can 'operate' a machine.

<u>Paragraph 23 page 42 comments – synergistic interplay</u>

The Examiner asserts that Appellant has not provided any reasons of which the combination fails to meet the claimed limitations. To the contrary, Appellant has pointed out that the combined teachings do not take into account the 'considering' aspects of such claim, which provides the synergistic interplay between the path plan selection and the environmental factors, and the synergistic interplay between the path plan selection and the vehicle dynamic constraints.

Paragraph 24 page 42 comments – marking

None of the cited references teach/suggest an actual marking of the unloaded materials themselves. Motz marks a map (which is not a map of unloaded materials), and Mueller teaches detecting 'when' a load should be picked up.


Paragraph 25 page 43 comments – marking

The Mueller sensor does not mark the materials 'with a marker' that is **usable** – i.e. at some future point in time - to locate materials.


Paragraph 26 page 43 comments – reading of marker

The Examiner asserts that optical sensors mark the unloaded material when the material reaches a level that requires pickup, thus reading the maker (sic) to know to pick up the material. Appellant urges that these optical sensors do not read a 'marker' specially marked on the materials ("***marking*** *the harvested material* ***with a marker*** for referencing the collected material data"; "*reading the* ***marker*** associated with the harvested material by a forwarder that includes forwarder electronics").

It is further noted and re-emphasized that the combined teachings do not describe a forwarder performing the marker reading step, as claimed. Instead, a conveyer belt sensor of Mueller performs this alleged marker reading step.

Paragraph 27 page 44 comments – ON/OFF indicator

The 'type' of sensor is not the issue – instead, the issue is the sensor 'functionality'. The Mueller sensors detect (i) when material has been detected, and (ii) where the sensor is located. Neither this material unload time nor sensor location describe information that indicates a *material location* of unloaded harvested material.


Paragraph 28 page 44 comments – multiple machines

The existence of multiple machines does not teach/suggest the claimed interplay between multiple machines, where a determined preferential path is sent to a plurality of machines, as claimed.

## Paragraph 29 page 45 comments – path identify & marker

The 'type' of sensor is not the issue. The combined teachings do not teach/suggest reading a marker *to reference stored data*, or determining a location of a forwarder *in response to the reading of the marker*. The Examiner's assertions are with respect to determining that material needs to be picked up.

## Paragraph 30 page 46 comments – path identify & marker

The cited references do not teach/suggest determining a path between a forwarder and unloaded materials for similar reasons to those given with respect to Claim 10 and the 'fixed hitch' between such forwarder/unloaded materials that results from the teachings of the combined teachings.

## Paragraph 31 page 47 comments – marker reading

The structural distinction is the marker that is associated with harvested material that is unloaded from a harvester. The Motz 'various data' that is alleged to be equivalent to the claimed 'marker' is not associated with harvested material that is unloaded from a harvester.

## Paragraph 32 page 48 comments – marker reading

In response to the assertion of missing claimed features pertaining to an 'estimator', the Examiner responds that 'If the prior art structure is capable of performing the intending use, the it meets the claim. The reading device of Motz is capable of reading various types of data thus would be capable of reading data which is associated with unloaded material'. Such 'reading of data' assertion does not establish prima facie obviousness with respect to "an estimator for estimating economic cost factors associated with corresponding candidate paths or segments of candidate paths between the forwarder location and the material location".

## <u>CONCLUSION</u>

As shown above and in the Appeal Brief, the Examiner has failed to state valid rejections against any of the claims. Therefore, Appellant requests that the Board of Patent Appeals and Interferences reverse the rejections of such claims.

<u>/Wayne P. Bailey/</u>

Wayne P. Bailey
Reg. No. 34,289
Yee & Associates, P.C.
P.O. Box 802333
Dallas, TX 75380
(972) 385-8777
Attorney for Appellant